PATENT ABSTRACTS OF JAPAN
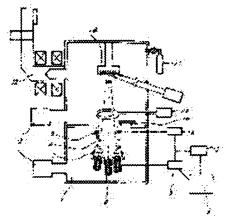
(54) FORMATION OF OXIDE SUPERCONDUCTOR THIN FILM

(57)Abstract:

PURPOSE: To facilitate the modulation control for the long periodical compound of an oxide superconductor including a high content of Tc by forcibly shielding a vapor flow generated in multiple crucibles with a shutter mounted just over the crucibles for a specific period and depositing the intermittent vapor flow on a substrate resulting in the growth thereof each atomic layer.

CONSTITUTION: A vapor flow 4 generated in multiple metal crucibles 2 is forcibly shielded with an automatic shutter 7 mounted just over the crucibles, to successively produce the intermittent vapor flow corresponding to the composition of metal elements in high Tc phase. For example, in Bi system, the intermittent vapor flow including Bi, Sr, Ca and Cu is successively deposited on a substrate, in correspondence to the modulation structure of the high Tc phase, each atomic layer. Accordingly, even an compound with long periodical crystal structure can be successively grown at the atomic layer level and the intensive oxidation force of oxygen plasma can be used. Thus, it is possible to obtain a preferable oxide without turbulence of the atomic layer at a relatively low temperature.

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